Fermilab CD/DCI Tech Note

Cable, UUP-TN-001.01

The following are construction requirements for Fermilab Computing
Division Data Communication unshielded-untwisted pair (UUP) patch/drop
cords used for voice and serial data applications. Users should always
purchase cords from recommended vendors to ensure compliance with tech
notes. (Call Data Comm. for a list of recommended vendors.) Also, use
the Data Comm.'s part number on Purchase Reqs when ordering cables, unless
directed otherwise.

1. Four-conductor UUP cords must be made from Belden RI-47849 or equivalent.

2. "RJ11" 6P4C flat/round cable-wire plugs must be AMP 5-641335-3.

3. In a "strait-thru" (straight-through) RJ11-RJ11 cord, pins 2, 3, 4
    and 5 on one end must connect to pins 2, 3, 4 and 5 on the other end
    respectively.

4. In a "null" (cross-over) RJ11-RJ11 cord, pins 2, 3, 4 and 5 on one
    end must connect to pins 5, 4, 3 and 2 on the other end respectively.

5. Cords must have proper strain relief such that tugging forces are
    not exerted directly on the individual conductors.

6. Six-conductor UUP cords must be made from Belden RI-47851 or equivalent.

7. "RJ12" 6P6C flat/round cable-wire plugs must be AMP 5-641337-2.

8. In a "strait-thru" (straight-through) RJ12-RJ12 cord, pins 1, 2, 3, 4, 5
    and 6 on one end must connect to pins 1, 2, 3, 4, 5 and 6 on the other end
    respectively.

9. In a "null" (cross-over) RJ12-RJ12 cord, pins 1, 2, 3, 4, 5 and 6 on one
    end must connect to pins 6, 5, 4, 3, 2 and 1 on the other end respectively.

10. Cords must have proper strain relief such that tugging forces are
     not exerted directly on the individual conductors.

11. Null cables must have red shrink tubing on each end (center for 1')
     of the cable.

LABELING
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a.) Cables must be labeled flag-style, three inches from the plugs
    on both ends.

b.) All cable labels must contain the following information: the vendor
    name, the vendor part number and a unique serial number. Serial
    numbers must be in one of the following formats:

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1.) Purchase Orders

   The serial number shall be derived from the Purchase Order
   number and be in the following format: XXX-YYYYYY, where
   XXX is a number that begins from 001 and increments by 1 up
   to the total number of cables being made by that vendor for
   that Purchase Order (regardless of whether the Purchase Order
   includes other assembled cables which are not UUP) and
   YYYYYY is the Purchase Order number.

2.) ProCard Orders

   The serial number shall be derived from the ProCard number and be
   in the following format: XXX-ZZZZZ, where XXX is a number
   that begins from 001 and increments by 1 up to the total number
   of cables being made by that vendor for that ProCard Order
   (regardless of whether the ProCard Order includes other assembled
   cables which are not UUP); ZZZZZ is the PRN number.

3.) Short Orders

   The serial number shall be derived from the Short Order number
   and be in the following format: XXX-YYYYYY, where XXX is a
   number that begins from 001 and increments by 1 up to the total
   number of cables being made by that vendor for that Purchase
   Order (regardless of whether the Short Order includes other
   assembled cables which are not UUP) and YYYYYY is the Short
   Order number.

c.) Vendors shall keep track of order numbers so that they do not get
    reused in future serial numbers, thereby preventing any two cables
    from having the same serial number.

d.) The labels shall also include the cables' end-end type (ie RJ11-RJ11),
    its jacket type (PVC or PLN), the appropriate Fermi part number and
    the length in feet (F) or meters (M) for that cable. The following is
    an example of the label format:

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 _____
| BestCables        |      <-----Vendor Name
| BC1234567         |      <-----Vendor Part Number (optional)
| Serial Number     |      <----"Serial Number"
| 001-2087PRN12345|      <-----Serial Number
| RJ11-RJ11 PVC   |      <----end-end & jacket type
| Strait-Thru       |      <------Wiring
| UUP-001A00-010F |      <-----Fermi part #
|_____|
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   e.) The labels must be Kroy 2556701, Panduit LS5-10 or equivalent.

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    f.) The labels must be laminated such that the information on the labels
       does not smear, fade or become unreadable under normal handling and
       installation conditions.

    g.) The font size **must** be 8-point or greater. Tiny, blotchy, smeared or
       otherwise unreadable characters will not be accepted.

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FERMI PART NUMBERS
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The following is a list of Fermilab cable part numbers:

Fermi #          Description

UUP-001A00       Cable, UUP, RJ11-RJ11, USOC "strait-thru", Stran, PVC
                 (AMP plugs, Belden RI-47849/equivalent cable)

UUP-001A01       Cable, UUP, RJ11-RJ11, USOC "null", Stran, PVC
                 (AMP plugs, Belden RI-47849/equivalent cable)

UUP-001A02       Cable, UUP, RJ12-RJ12, USOC "strait-thru", Stran, PVC
                 (AMP plugs, Belden RI-47851/equivalent cable)

UUP-001A03       Cable, UUP, RJ12-RJ12, USOC "null", Stran, PVC
                 (AMP plugs, Belden RI-47851/equivalent cable)
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